UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 June 2007*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☒ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 June 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *28 Jun 2006*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1.   **Claim 1, 7 and 8** are objected to because of the following informalities:

As to **claim 1**, line 12 states "from the to the sender incoming data stream". This appears to mean "from the receiver to the sender incoming data stream". Line 14 states "and each PDUs". This appears to mean "each of the PDUs".

As to **claim 7**, line 10, states "from a to the sender transmitter unit". This appears to mean "from a receiver to the sender transmitter unit". Line 12 states "and each PDUs". This appears to mean "each of the PDUs".

As to **claim 8**, line 10, states "from a to the sender transmitter unit". This appears to mean "from a receiver to the sender transmitter unit". Line 12 states "and each PDUs". This appears to mean "each of the PDUs".

For purposes of examination, the claims have been read as indicated above. Appropriate correction is required.

Drawings

2.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: **4a** (as referenced in ¶ 38 of the specification). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of

an application must be labeled in the top margin as either "Replacement Sheet" or "New

Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next

Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4.   **Claim 1 and 5-11** are rejected under 35 U.S.C. 102(b) as being anticipated by

Seidel (US PGPub 2001/0055290).

As to **claim 1, 5 and 6**, Seidel discloses:

"*a)-grouping* of PDUs (405), wherein a number of PDUs from the to the sender

incoming data stream are grouped into a set of PDUs, and each PDUs are given a

sequence number, n" (**Fig. 5** shows segmentation of data into PDUs and assigning a

sequence number to the PDUs);

"*b)-assigning* (410) transmit power and code rate to PDUs, wherein each PDU is

assigned a transmit power level value, Pk, and a code rate value, Ck" (**Fig. 5** shows the

base station sends PDUs; PDUs contains a transport format control indicator (TFCI)

that includes code rate information (¶ 40); it is well known in the art that the TFCI, as

well as a TPC field for transmit power control and sequence number, is part of the PDU

header);

"c)-storing* PDUs (415), wherein the PDUs are stored in a memory along with

their sequence number (n), and the assigned power level value, Pk, and code rate

value, *Ck"* (**Fig. 5** shows the base station stores PDUs for possible retransmission; it is

well known in the art that the power level, code rate information, and sequence number

are part of a PDU; it is implicit that the header will be stored with the PDU);

"d)-transmitting* PDUs (420), wherein the PDUs of the set of PDUs are

simultaneously transmitted from the sender with their respective power level

value, *Pk,* and code rate value, Ck" (**Fig. 5** shows the base station sends PDUs to the

mobile station; **Fig. 2** show data slot and frame format, which are comprised of PDUs,

for transmitting to the receiver as described in ¶ 40);

"e)-receiving* PDUs (425), wherein the transmitted PDUs are received by the

receiver, decoded and checked for errors, and PDUs not considered

decodeable are recognised as not correctly received" (**Fig. 5**, the mobile station

receives and decodes PDUs and determines erroneous PDUs);

"f)-feedbacking* (430), wherein the receiver transmits to the sender an ARQ

feedback in form of a ACK or NACK message, wherein the ACK or NACK message

comprises information on the PDUs which were correctly received or the PDUs which

were not correctly received, respectively" (**Fig. 5**, mobile station sends acknowledge/not

acknowledge back to the transmitter according to whether the decoding of the PDU was

successful);

"g)-discarding* correctly received PDUs from memory (435), wherein the sender

discards from the memory the temporally stored PDUs which were correctly received,

and forms a new set of PDUs comprising the PDUs which were not correctly received"

(¶ 9 discloses retransmitting the erroneous PDUs; the retransmission buffer was

specifically created for holding PDUs in case they need to be transmitted, and therefore,

it is inherent that the PDUs reported as received correctly are deleted from the

retransmission buffer).

As to **claim 7**, Seidel discloses a system comprising:

"grouping means (515) for grouping PDUs so that a number of PDUs from the to

the sender incoming data stream are grouped into a set of PDUs, and each PDUs are

given a sequence number, n, and assigning transmit power and code rate to PDUs so

that each PDU is assigned a transmit power level value, Pk, and a code rate value, Ck,

which grouping means is arranged to receive an ARQ feedback" (**Fig. 5, ¶ 55-56**

discloses segmentation of data into PDUs and assigning sequence numbers to PDUs

within a frame; as stated in claim 1 analysis above, the PDUs contains a transport

format control indicator (TFCI) that includes code rate information (¶ 40); it is well

known in the art that the TFCI, as well as a TPC field for transmit power control and

sequence number, is part of the PDU header);

"storing means (517), arranged to be accessible from said grouping means

(515), and adapted to store PDUs along with their sequence number, n, and the

assigned power level value, Pk, and/or code rate value Ck" (**Fig. 5, ¶ 56** discloses the

PDUs are stored for possible retransmission; it is implicit that the header containing

sequence number, TFCI and TPC is stored with the PDU);

"transmitting means (530) for transmitting PDUs so that the PDUs of the set of
PDUs are essentially simultaneously transmitted from the sender with their respective
power level value, Pk, and code rate value, Ck (**Fig. 5** shows the base station sends
PDUs to the mobile station; **Fig. 2** show data slot and frame format, which are
comprised of PDUs, for transmitting to the receiver as described in ¶ 40);

"discarding means (518), arranged to be accessible from said grouping means
(515), for discarding correctly received PDUs from memory the temporally stored PDUs
which were correctly received, and forming a new set of PDUs comprising the PDUs
which were not correctly received" (¶ 9 discloses retransmitting the erroneous PDUs;
the retransmission buffer was specifically created for holding PDUs in case they need to
be transmitted, and therefore, it is inherent that the PDUs reported as received correctly
are deleted from the retransmission buffer);

"means for receiving, decoding and checking (545) PDUs for errors (CRC) and
recognising PDUs which are not considered decodeable as not correctly
received" (**Fig. 5; ¶ 56** discloses the mobile station receives and decodes the PDUs
and ; *see* ¶ 3 stating that the receiver uses CRC to detect errors in the transmitted data)

"feedbacking means (550) for feedbacking to the sender an ACK or NACK
message, wherein the ACK or NACK message comprises information on the PDUs
which were correctly received or the PDUs which were not correctly received,
respectively" (**Fig. 5, ¶ 57**; discloses the receiver sends ACK or NACK back to the
transmitter for each PDU received).

As to **claim 8**, Seidel discloses:

"grouping means (515) for grouping PDUs so that a number of PDUs from the to

the sender incoming data stream are grouped into a set of PDUs, and each PDUs are

given a sequence number, n, and assigning transmit power and code rate to PDUs so

that each PDU is assigned a transmit power level value, Pk, and a code rate value, Ck,

which grouping means is arranged to receive an ARQ feedback" (**Fig. 5, ¶ 55-56**

discloses segmentation of data into PDUs and assigning sequence numbers to PDUs

within a frame; as stated in claim 1 analysis above, the PDUs contains a transport

format control indicator (TFCI) that includes code rate information (¶ 40); it is well

known in the art that the TFCI, as well as a TPC field for transmit power control and

sequence number, is part of the PDU header);

"storing means (517), arranged to be accessible from said grouping means

(515), and adapted to store PDUs along with their sequence number, n, and the

assigned power level value, Pk, and/or code rate value Ck" (**Fig. 5, ¶ 56** discloses the

PDUs are stored for possible retransmission; it is implicit that the header containing

sequence number, TFCI and TPC is stored with the PDU);

"transmitting means (530) for transmitting PDUs so that the PDUs of the set of

PDUs are essentially simultaneously transmitted from the sender with their respective

power level value, Pk, and code rate value, Ck (**Fig. 5** shows the base station sends

PDUs to the mobile station; **Fig. 2** show data slot and frame format, which are

comprised of PDUs, for transmitting to the receiver as described in ¶ 40);

"discarding means (518), arranged to be accessible from said grouping means

(515), for discarding correctly received PDUs from memory the temporally stored PDUs

which were correctly received, and forming a new set of PDUs comprising the PDUs

which were not correctly received" (¶ 9 discloses retransmitting the erroneous PDUs;

the retransmission buffer was specifically created for holding PDUs in case they need to

be transmitted, and therefore, it is inherent that the PDUs reported as received correctly

are deleted from the retransmission buffer).

As to **claim 9**, Seidel discloses all of claim 8 and further discloses:

"means for receiving, decoding and checking (545) PDUs for errors (CRC) and

recognising PDUs which are not considered decodeable as not correctly

received" (**Fig. 5; ¶ 56** discloses the mobile station receives and decodes the PDUs

and ; ¶ 3 discloses that the receiver uses CRC to detect errors in the transmitted data)

"feedbacking means (550) for feedbacking to the sender an ACK or NACK

message, wherein the ACK or NACK message comprises information on the PDUs

which were correctly received or the PDUs which were not correctly received,

respectively" (**Fig. 5, ¶ 57**; discloses the receiver sends ACK or NACK back to the

transmitter for each PDU received).

As to **claim 10**, Seidel discloses all of claim 8 and further discloses the "device is

a mobile terminal for use in a cellular radio communication system (**Fig. 5** disclosing

transmission of data from a base station (BS) to a mobile station (MS).

As to **claim 11**, Seidel discloses all of claim 8 and further discloses the "device is

a radio base station for use in a cellular radio communication system" (**Fig. 5** disclosing

transmission of data from a base station (BS) to a mobile station (MS).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

6.   **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Seidel**

(US PGPub 2001/0055290) in view of **Schefczik (EP 1182797 A1)**, as disclosed in the

IDS dated June 28, 2006.

As to **claim 2**, Seidel discloses all of claim 1.

Seidel does not disclose that "the steps b) to g) are repeated (440) and wherein

the PDUs which were not correctly received in a first transmission are in a subsequent

transmission retransmitted at higher respective power level values, Pk, and/or different

code rate values, Ck, than used in the first transmission".

Schefczik teaches that on retransmission of incorrectly received data, the

transmitter unit automatically increases the transmission power for transmission of the

data blocks to be repeated **(col. 3, lines 7-26)** and may also convert the transmission to

a coding which offers greater protection to the payload (**col. 3, line 53 through col. 4, line 2**).

Schefczik and Seidel are analogous art in that they both pertain to automatic repeat request (ARQ) methods for retransmitting data. It would have been obvious to one skilled in the art at the time the invention was made to combine the power and/or code rate adaptation on retransmission as taught in Schefczik with the ARQ method in Seidel in that the adaptation provides greater protection of the payload data, as described in Schefczik (col.1, lines 45 through col. 2, line 9).

7.   **Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Seidel (US PGPub 2001/0055290)** in view of **Schefczik (EP 1182797 A1)**, as shown in the IDS dated June 28, 2006, as applied to claim 2, and further in view of **Chen (US Patent No. 6,101,168**, as disclosed in the IDS dated June 28, 2006).

As to **claim 3**, Seidel in view of Schefczik teaches all of claim 2 and further teaches "PDUs are assigned descending power levels with regards to their sequence number so that the PDU with the lowest sequence number is given the highest power level value and in the step of the PDUs which were not correctly received are given the lowest sequence numbers".

Seidel teaches that if the PDU is corrupted, the coding has to be done with a lower coding rate (¶ 14) and that, except for retransmission that are often sent with high priority, all packets are sent in order (¶ 46).

Schefczik teaches PDUs are assigned different coding rates (col. 5, line 46 through col.6, line 1) and better (lower) coding rates are associated with a higher power

level (col. 6, lines 48-58). As such, retransmitted packets are transmitted at a higher power level. It would have been obvious to one skilled in the art at the time the invention was made to assign sequence numbers in order of priority of transmission and the higher power level indicates higher priority, and therefore, lower sequence numbers are assigned to data with higher transmission power levels.

Seidel in view of Schefczik does not teach that "the set is filled up with new PDUs from the incoming data stream".

Chen teaches that a data packet which is received in error is retransmitted by the source device concurrently with the new data packet within the same time period (**col. 9, lines 38-56**).

Chen and Seidel in view of Schefczik are analogous art in that they all pertain to ARQ retransmission methods. It would have been obvious to use the method of sending retransmitted data with new data as taught in Chen with the method of retransmission in Seidel in view of Schefczik being that it prevents delay of sending new data by sending the new data with certain retransmitted packets.

8.   **Claims 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Seidel (US PGPub 2001/0055290)** as applied to 1, and further in view of **Crocker et al. (US PGPub US 2004/0203419)**.

As to **claim 4**, Seidel does not teach that "at least one of the power level values used for transmitting at least one PDU is below an estimated noise floor".

Crocker et al. teaches that mobile station may have a prescribed quality level where the power level is lower than the power of the noise floor (**¶ 3-4**).

Crocker et al. and Seidel are analogous art in they pertain to transmit power control. It would have been obvious to one skilled in the art at the time the invention was made to provide for a mobile station transmitting with a power level below the noise floor as taught in Crocker et al. with the ARQ retransmission method in Seidel being that it provides a way to recover erroneous data from lower power, lower data rate transmissions caused by interference from an increased noise floor level.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARIA L. SEKUL whose telephone number is (571)270-7636. The examiner can normally be reached on Monday - Friday 8:00-5:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis West can be reached on (571) 272-7859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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